

REMARKS

The Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-12 are pending. No claims are amended. Claims 1 and 7 are independent. The Examiner is respectfully requested to reconsider the rejections in view of the amendments and remarks set forth herein.

Claim for Priority

It is gratefully appreciated that the Examiner has recognized the Applicants' claim for foreign priority.

Acknowledgement of Information Disclosure Statement

It is gratefully appreciated that the Examiner has acknowledged the Information Disclosure Statements filed on November 21, 2003 and March 17, 2005.

Rejection Under 35 U.S.C. §103(a)

Claims 1-12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Koike et al. (U.S. 4,768,486) in view of Nagaishi (U.S. 6,539,785), and

claims 1-12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Toshimitsu et al. (U.S. 4,7825,834) in view of Nagaishi.

These rejections are respectfully traversed.

For example, independent claim 1 as currently written recites a combination of elements directed to a fuel injection system, including *inter alia*

means for detecting a rate of change of said throttle opening in an injection-valve closing direction; and

means for stopping fuel injection of said upstream fuel injection valve when said rate of change is larger than a reference rate of change.

In addition, independent claim 7 as currently written recites a combination of steps directed to a method for injecting fuel, including *inter alia*

detecting a rate of change of said throttle openings in an injection-valve closing direction; and

stopping fuel injection of said upstream fuel injection valve when said rate of change is larger than a reference rate of change.

The Applicants respectfully submit that the combination of elements/steps as set forth in each of independent claims 1 and 7 is not disclosed or made obvious by the prior art of record, including Koike et al., Toshimitsu et al., and Nagaishi.

The Examiner concedes that neither Koike et al. nor Toshimitsu et al. teaches means for detecting a rate of change of said throttle opening in an injection-valve closing direction as presently claimed.

The Examiner then states that Nagaishi shows that the provision of a sensor to detect the rate of change of the throttle opening is old and well known in the art. However, the Applicants respectfully submit that the Examiner's opinion is not proper.

As disclosed in Nagaishi column 4, lines 54-63, this document appears to disclose that a rate of change of the throttle opening is detected by the throttle sensor 10. However, in contrast to the present invention, Nagaishi merely detects the rate of change to determine whether a diagnostic condition has been satisfied or not. Thus, Nagaishi fails to provide any hint or suggestion of detecting a rate of change of said throttle openings in an injection-valve closing direction; and stopping fuel injection of said upstream fuel injection valve when said rate of change is larger than a reference rate of change, as presently claimed.

In addition, while Koike et al. and Toshimitsu et al. both disclose an upstream fuel injection valve and a downstream fuel injection valve, the control systems are completely different.

Further, the present invention was developed to address problems of the conventional art, including the problem that fuel adheres in high amounts to the throttle valves in conventional systems when the throttle valves are closed abruptly. There is no suggestion in any of the Koike et al., Toshimitsu et al., and Nagaishi references that these inventors were aware of or faced the problem addressed by the present inventors. Thus, there is no suggestion of a motivation to combine the references cited by the Examiner, and even if the references cited by the Examiner were combined, the combination would not suggest or teach the present invention.

At least for the reasons explained above, the Applicants respectfully submit that the combination of elements/steps as set forth in each of independent claims 1 and 7 is not disclosed or made obvious by the prior art of record, including Koike et al., Toshimitsu et al.,

and Nagaishi. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Thus, independent claims 1 and 7 are in condition for allowance.

Further, the dependent claims are in condition for allowance due to their dependency from allowable independent claims, as well as for the additional novel limitations set forth therein.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested.

CONCLUSION

Since the remaining patents cited by the Examiner have not been utilized to reject claims, but merely to show the state of the art, no comment need be made with respect thereto.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone Carl T. Thomsen (Reg. No. 50,786) at (703) 205-8000.

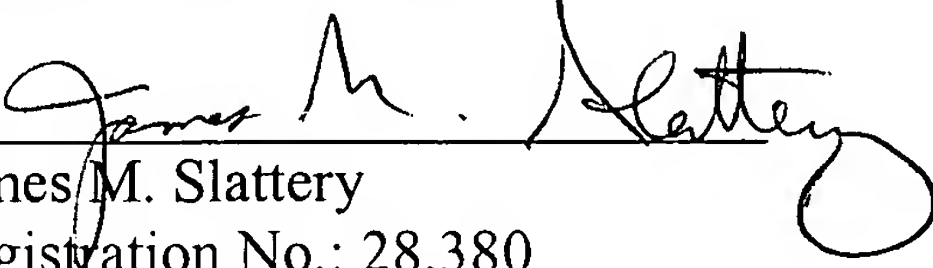
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

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Respectfully submitted,

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